

## REMARKS

### Claim Status:

Claims 29-30 and 35 have been objected to because they depend from a rejected claim. The Office Action indicates that these claims would be allowable if rewritten in independent form.

Claims 1-8 and 31 have been canceled. Claims 9-30 and 32-41 are pending. Claims 32 and 40 have been amended to recite that one and the same fan means generate the gas flows and regulate the temperature.

The claims have been amended to clarify that one and the same fan means is used to generate the gas stream/gas flows and is used to regulate the temperature. The basis for this feature of the claims is found in the description of the embodiment of Fig. 4, where fans 16 and 17 both are described as being responsible for generating the respective gas stream and for regulating the temperature. Please note that this does not change the scope or meaning of the claims, but is merely a clarification. For example, the previous version of Claim 32 recited "...generating first and second gas streams via fan means..." and "...controlling the fan means to regulate the temperatures..." (emphasis added).

Since the above feature was already recited in the pending claims, prior to the amendment to claims 32 and 40, the below

argument applies irrespective of whether the Examiner enters the amendment or not.

#### Claim Rejections - 35 USC § 103

Claims 9-11, 13-16, 18-21, 24, 27-28, 32-34, and 36-41 stand rejected under 35 USC 103(a) as being unpatentable over Champlin (U.S. Pat. 3,048,383) in view of Grenzi et al. (U.S. Pat. 5,906,055).

In alleging obviousness of the above-noted claims using Champlin and Grenzi, the Examiner has described the references and then simply used Applicants disclosure to find motivation to combine. There is no motivation in the art to combine the references.

Even if some motivation to combine the above-noted combination exists, the combination does not yield the claimed invention.

#### The Champlin and Grenzi References

Champlin teaches a furnace for gas-supporting and heat-treating flat work in the form of a continuous strip of metal (see col. 1, lines 10-18). Contrary to the Examiner's allegation, *Champlin does not teach drying* of treated articles. In the context of the claimed invention, drying is the removal of a liquid from the surface of the article. Heat-treating is

quite different: in the context of Champlin, it is the use of heat to modify the characteristics of steel, typically its strength etc. Champlin does not remove liquid from the surface of articles.

In each of the several sections of the Champlin furnace there is a lower hearth and an upper hearth (see col. 3 lines 2-5). In order to convey the work through the sections of the furnace, each section has a pair of blowers (39, 40). Each of the blowers is connected to a plenum. One of the pair of blower/plenums is respectively positioned in a lower or upper hearth part of each section. Each blower generates pressurized gas which functions to suspend the work (see col. 1, line 15) in each section of the furnace (see Fig. 1). The requirement to suspend the work is the same in each section of the furnace for a given work material.

Since the Champlin device is a furnace for heat-treating, there are some sections which heat the work (14) and some sections that cool the work (15). The heating sections are supplied with indirect heating means (50). Similarly, each cooling section is supplied with cooling means (56). Thus, while the suspension requirement is the same in each section for a given work material, there are different temperature requirements in sections of the furnace.

Champlin stresses (col. 1, lines 23-40) that it solves a disadvantage of the prior art, namely non-uniform heating of the material to be processed, by providing *independently regulatable pressure and/or temperature of the gas*. Hence, irrespective of weight and size of work, such work can be held in a predetermined position relative to each of the hearths and simultaneously treated from both sides, precisely and as respectively desired (see col. 1, lines 43-46).

Grenci teaches a direct heating mechanism comprising a rotary gas compressor (see Abstract). The Grenci compressor imparts heat to a gas stream for closed and open loop piping applications (see Abstract).

The rejection under §103(a) based on Champlin and Grenci

Under M.P.E.P. § 2142, the key to supporting any rejection under 35 U.S.C. § 103, there must be a clear articulation of the reason(s), with rational underpinning, to support the conclusion of obviousness. The Examiner has failed to supply an articulation that meets the requirement.

The Examiner states that it would have been obvious...to modify the method and apparatus of Champlin to regulate the gas flow temperature by controlling the fan rotation speed based on the detected gas steam [sic] temperature and to regulate the pressure based on the detected gas pressure as taught by Grenci

et al. in order to more efficiently control the gas stream temperature and pressure and obtain a predictable gas temperature and pressure control result.

However, this does not supply all of the limitations of or render obvious the independent claims, which recite a device that generates first and second gas streams via a fan means, directs the flow of the gas streams onto the treated article respectively above and below the predefined path, and controls one and the same fan means which generate the first and second gas streams to regulate the temperatures of the first gas stream and/or the second gas stream to predefined values (paraphrased).

Champlin teaches away from the use of one fan means to both suspend treated articles with gas streams and regulate the temperature because Champlin teaches the need for independent regulation of gas pressure and temperature, which requires the use of separate elements for pressure and temperature production. Thus, Champlin requires a fan to suspend the article, and another, different apparatus to modify the temperature. Grenci fails to remedy the deficiency of Champlin, namely the teaching, suggestion or motivation to use one and only one fan means for both suspension of treated articles and controlling the fan means such that a desired temperature is regulated.

Another reason that one with skill in the art would not look to Grenci to modify Champlin is that Champlin teaches an indirect heating apparatus involving a burner acting on tubes (50) to heat a gas and Grenci teaches a direct heating apparatus (a compressor). In the context of the Champlin device, a direct heating apparatus like that taught by Grenci would logically disrupt the critical operation of the "independent regulation of the gas pressure fed to each plenum chamber," (see col. 3, lines 72-73). Champlin teaches that indirect heating is the clearly preferred mechanism in an apparatus where tempering of steel or the like is performed (see col. 3, lines 48-55). Therefore, it would not be obvious to substitute the direct heating device of Grenci for the indirect heating device at least because of the different operating properties of the two different heating devices.

Even if, *arguendo*, one would combine Champlin and Grenci, a likely combination, as indicated by the prior art, would involve the replacement of the heating device disclosed in Champlin, i.e., the burners (51) (see col. 3, lines 41-56) and the heating means (50), with the compressor of Grenci. This would result in an arrangement where one fan means, namely the blowers (39, 40) are used for generating the gas stream, and an *additional* (different) fan means, namely the compressor (2), of Grenci is used for regulating the temperature. This arrangement is

clearly not within the claims, as it does not contemplate the "one and the same fan means..."

With respect to a combination of Champlin and Greci that results in replacement of the fan of Champlin with the compressor of Greci (which would leave the heating means of Champlin in place), one skilled in the art would not realize such a combination. This would only create additional costs and effort while adding little benefit (since the heating means of Champlin works for its intended purpose); furthermore this would result in two separate heat regulation/control mechanisms which may easily interfere with each other, causing, e.g., temperature overshoot and/or undershoot.

Therefore, the combination of Champlin and Greci is not a *prima facie* case of obviousness because the combination does not supply all of the limitations of the independent claims, the combination would be inoperable in view of the teaching of Champlin and there is teaching away from combining elements from the two documents. Thus, the combination of prior art documents is non-obvious.

The Applicants do not concede any of the rejections of the dependent claims. The above remarks apply also to the remaining rejections, since they concern claims that depend from claims 32 and 40.

As explained above, Champlin and Grenci do not render the independent claims obvious. The deficiencies of Champlin and Grenci are not overcome by the Leap, Thome, Hochstrasser, or Melgaard references.

The rejection under §103(a) based on  
Champlin, Grenci and Hochstrasser

Claims 22 and 23 were rejected under 35 U.S.C. §103(a) by Champlin, Grenci and Hochstrasser (U.S. Patent No. 4,113,977).

Claims 22 and 23 respectively recite an "an evacuation duct is provided to evacuate the gaseous drying medium from the housing" and "extraction means are associated with the evacuation duct, further pressure sensor means are arranged in the housing at a distance from the gas outlet devices, and the control means are configured to control the extraction means in such a way that a pressure detected by the further pressure sensor means is maintained at a constant predefined value."

Hochstrasser is cited to supply the elements of claims 22 and 23, noted above, but there is no reason to modify the Champlin device with the elements from Hochstrasser, nor does Hochstrasser supply what is lacking from the Champlin and Grenci references. For these reasons, the combination of Champlin, Grenci and Hochstrasser does not render claims 22 and 23 obvious.



The Examiner alleges that Hochstrasser teaches elements that would be obvious to use in the claimed device. To the contrary, Hochstrasser teaches away from such a combination because Hochstrasser teaches that it is desirable to maintain a negative or below atmospheric pressure (see col. 6. lines 12-14). In contrast, Champlin and Greci are operated in positive pressure conditions - in Champlin sufficient pressure to suspend work and Greci sufficient pressure to supply purge gas. Champlin also specifically states that the furnace is preferably "gas-tight" (see col. 2, line 55). Therefore there is no reason to look to Hochstrasser to supply evacuation and extraction functions to a system that is to be operated in positive pressure conditions.

Further, there does not seem to be any reason in Champlin to use the elements of Hochstrasser. More specifically, there is no reason to employ a means for removal of vaporized liquid in the Champlin device. Certainly if there was some reason to have such features in the Champlin device, Champlin would have indicated as much. Champlin however says nothing about an evacuation feature. Of course, one skilled in the art will attribute this to the fact that Champlin is a device for heat-treating and not for drying. Champlin has no need for evacuation or removal of gases. Thus, there is no reason to modify Champlin to include the features of Hochstrasser.

For the above reasons, the Applicants respectfully request the Examiner reconsider and withdraw the rejections based on 35 U.S.C. § 103(a).

Conclusion

No new matter is added by the amendments made herein. The claims are not rendered obvious by the cited prior art. Reconsideration is requested.

Should the Examiner believe that a discussion of this matter would be helpful the Examiner is invited to telephone the undersigned at (312) 913-0001.

Respectfully submitted,

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By: /Steven J. Sarussi/

Steven J. Sarussi  
Reg. No. 32784

McDonnell Boehnen  
Hulbert & Berghoff LLP  
300 S. Wacker Drive  
Chicago, IL 60606  
(312) 913-2136